

IMPORTANCE OF THE LINGUAL REEDUCATION BY THE TONGUE RIGHT POSITIONER ON THE UPPER AIRWAYS PERMEABILITY IN YOUNG ORTHODONTIC PATIENTS

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Introduction:

SBD are characterized by the tongue and pharyngeal tissues collapsing on the pharynx when inhalation during sleep. This phenomenon is due dysfunctional tongue inducing low oropharyngeal muscles tone and narrowed upper airways.

Tongue re-education treatment aiming with exercises aim at increasing upper airways patency by increasing muscle tone. This approach is an efficient treatment of SBD although compliance is patients and practitioners dependent.

It could be interesting to assess efficiency of a Tongue Right Positioner (TRP) based reeducation approach on upper airways patency

The TRP (Tongue Right Positioner)



- Fixed TRP for young patients for permanent action
- Establishes physiological lingual functions and posture
- comfortable, tolerance and adherence> 98%

Materials and Methods

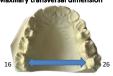
- 49 Orthodontic patients aged 11.3 ± 2.4 y
- 32 ♀ and 17 ♂
- 75% with mouth or mixed breathing
- · All patients have tongue dysfunctions
- TRP is removed when tongue functions correction is confirmed

Radiography #1 TRP Radiography #2 TRP Radiography #3 installation 47 ± 8,5 removal 113 ± 66 days 377 ± 63 days 320 ± 61 days Follow-up TRP treatment

Pharynx diamete



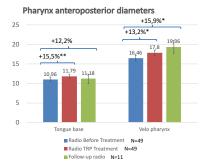
Maxillary transversal dimension



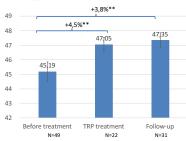
Nasal Patency



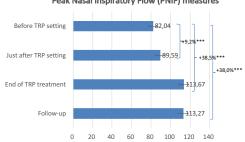
Results



Upper Molar / Molar distance (mm)



Peak Nasal inspiratory Flow (PNIF) measures



Discussion

TRP effects:

Mechanical

Mature swallowing

Effect on PNIF:

Immediate +9.2%

Physiological

tongue positions

tensioning oro-

muscles

pharyngo-lingual

Progressive: +38,5%

Persistent: +38.0%

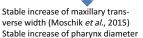
Tongue induced transverse maxillary width increase

- Favors recruitment of Styloglossus (Mauclaire et al., 2015)
- Enlarges upper pharyngeal airways (Aloufi et al., 2012)

Impact on Velopharynx diameter: +13,2% increase

Increase nasal Fossae and nasal patency (Matsumoto et al., 2010)

Trained oro-facial functions





Potential benefits

Nasal breathing

- Snoring
- Obstructive sleep apnea

Pharynx anteroposterior diameter increase

 Due to Genioglossus increased tone (Mauclaire et al., 2015) Impact on Base of tongue diameter: +15,5% increase



Hypothesis: TRP transverse and anteroposterior muscular effects change equilibrium of velo-lingual-pharyngeal muscular loops resulting in tensioning veli palati muscles (Chancholle, 1991)

Favors improved upper airways patency

Conclusions

TRP based re-education of lingual functions increases and maintains pharynx sagittal diameter from velopharynx to tongue base levels as well as maxillary transversal dimension inducing pharynx transverse enlargement. These results are probably enabling lasting improvements of nasal breathing and upper airways patency.

TRP, acting on tongue muscles' tone and position, could be a well tolerated, potentially curative alternative for the treatment of Sleep Breathing Disorders.

effects of rapid maximum y experiment.
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Mauclaire C, Vanpoulle F & Saint-Georges-Chaumet Y (2015) Physiological cor lingual dysfunction with the "Tongue Right Positioner": Beneficial effects on th

